

Strategic Forces Programs

Strategic Forces Subcommittee Major Acquisition Programs of Jurisdictions

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Missile Defense

Airborne Laser (ABL) -- The Airborne Laser is an integral part of the Ballistic Missile Defense System designed to protect the United States, its allies, and its deployed troops from a ballistic missile attack. Using a megawatt-class Chemical Oxygen Iodine Laser housed aboard a modified Boeing 747, the Airborne Laser's mission is to detect, track, target, and destroy ballistic missiles during their boost-phase, or shortly after launch. Its revolutionary use of directed energy makes it unique among the United States' airborne weapon systems, displaying a capability to attack at the speed of light at a range of hundreds of kilometers.

Kinetic Energy Interceptor (KEI) - The Kinetic Energy Interceptor (KEI) is a missile defense system designed to destroy medium, intermediate, and intercontinental ballistic missiles during the boost and midcourse phases of flight. This element is deployed close to a threat on mobile land launchers or on sea-based platforms such as surface ships or submarines. The element's mobile, multi-use capability can destroy ballistic missiles in boost, ascent, and midcourse phases of flight.

Ground Based Midcourse Defense (GMD) --MDA's GMD element is being developed to defend the United States against limited long-range ballistic missile attacks. The system's initial capability consists of a collection of radars and interceptors, which are integrated by a central control system that formulates battle plans and directs the operation of GMD components. The ground-based interceptors are capable of shooting down long-range ballistic missiles during the midcourse phase of flight. The interceptors are designed to directly hit the incoming missile by ramming the warhead with a closing speed of approximately 15,000 miles per hour to destroy it. This is called "hit-to-kill" technology and has been proven to work in a number of flight test.

Terminal High Altitude Area Defense (THAAD) -- The Terminal High Altitude Area Defense element will give the Ballistic Missile Defense System a valuable, rapidly-transportable, forward-deployable capability that will intercept and destroy ballistic missiles inside or outside the atmosphere while they are in their final, or terminal, phase of flight. This system will be highly effective against the asymmetric ballistic missile threats. Specifically, the high-altitude intercept allows for enemy weapons of mass destruction to burn up in the atmosphere before reaching the ground.

Aegis Ballistic Missile Defense (BMD) -- Aegis Ballistic Missile Defense is a sea-based missile defense system being developed in incremental, capability-based blocks to protect deployed U.S. forces, allies, and friends from short- and medium-range ballistic missile attacks. Aegis Destroyers, on Ballistic Missile Defense patrol, detect and track Intercontinental Ballistic Missiles and report track data to the missile defense system. This capability shares tracking data to cue other missile defense sensors and provides fire control data to Ground-based Midcourse Defense interceptors located at Fort Greely, Alaska and Vandenberg Air Force Base, California.

Aegis Cruisers and Long Range Surveillance and Track Destroyers are being equipped with the capability to intercept short and medium range, ballistic missile threats with the Standard Missile 3.

Patriot Advanced Capability-3 (PAC-3) -- One of the most mature elements of the Ballistic Missile Defense System is the PATRIOT Advanced Capability-3 System, and is now operational with the U.S. Army. The PAC-3 missile is a high velocity, hit-to-kill missile and is the next generation Patriot being developed to provide increased defense against tactical ballistic missiles, cruise missiles, and hostile aircraft. The PAC-3 System was deployed to the Middle East as part of Operation Iraqi Freedom where it successfully engaged several ballistic missiles.

Sea Based X-Band Radar -- The Sea-Based X-Band Radar will track, discriminate and assess incoming target missiles

and will greatly increase the Missile Defense Agency's ability to conduct operationally realistic testing of its Ground-Based Midcourse Defense element. The Sea-Based X-Band Radar is a unique combination of an advanced X-band radar with a mobile, ocean-going, semi-submersible platform that provides a discrimination capability that can be positioned to cover any part of the globe. Its ocean-spanning mobility allows the radar to be repositioned as needed to support various test scenarios or provide radar coverage of possible threat missile launches from anywhere in the world.

Medium Extended Area Defense System (MEADS) -- The Medium Extended Air Defense System is a cooperative effort between the United States, Germany, and Italy to develop an air and missile defense system that is both mobile and transportable. Initially using the PATRIOT Advanced Capability-3 interceptor, it will be capable of countering ballistic missiles and air-breathing threats (i.e. aircraft, unmanned aerial vehicles, and cruise missiles). In addition, MEADS will provide short-range point defense for vital civilian and military assets, defend deployed troops, and provide continuous missile defense coverage for rapidly maneuvering forces. Mounted on wheeled vehicles, the system will include launchers carrying several interceptors along with advanced radars that will provide 360-degree coverage in the battlefield.

Military Space

Advanced Extremely High Frequency (AEHF) -- The Air Force's AEHF protected satellite communications system is a follow-on to the existing Milstar system with higher capacity, more survivable, jam-resistant, worldwide, secure communication capabilities for strategic users, tactical forces, and international partners. The constellation consists of three satellites in geosynchronous orbit.

Evolved Expendable Launch Vehicle (EELV) -- The Air Force's EELV program comprises two families of space launch vehicles-Atlas V and Delta IV-with the capability to accommodate light, medium, and heavy payloads for all users. Initiated as an industry partnership, the program's goal is to support and sustain assured access to space for placing large payloads into orbit and reduce the life-cycle cost of space launches by at least 25 percent over previous systems while meeting the government's launch requirements. A number of variants are available depending on the lift capability necessary for each mission.

Operationally Responsive Space (ORS) -- Operationally Responsive Space is an initiative to provide low-cost, rapid

reaction payloads, satellite busses, space launch, and launch control capabilities in order to fulfill joint military operational requirements. Science and technology, development, and operations activities span the military services, defense agencies, research labs, academia, and industry. ORS is a vision for transforming future space and near space operations, integrations and acquisition, all at a lower cost.

Global Positioning System (GPS) -- The Global Positioning System (GPS) provides highly accurate positioning, navigation and timing data (globally, 24 hours a day, and in any type of weather) to an unlimited number of civil users and authorized military users. Commercial users also benefit greatly from GPS data, including the automotive, aviation, and financial industries, which leverage GPS for navigation aids and precision timing. The GPS constellation consists of 24 or more satellites in six orbital planes, traveling in 12-hour orbits around the earth. The satellites are monitored and controlled at ground stations located across the globe. Users can access GPS through a myriad of civil, commercial, and military GPS receivers used for military, civil, and commercial air, land, sea, and space applications.

National Polar-orbiting Operational Environment Satellite System (NPOESS) -- The National Polar-orbiting Operational Environmental Satellite System (NPOESS) is a tri-agency program (DoD, Department of Commerce, and NASA) that will provide the military and civil community with assured, timely, high-quality global weather and environmental information to warn against severe weather events, protect national resources, and effectively employ weapon systems. NPOESS will replace two separate weather satellite systems-the DoD's Defense Meteorological Satellite Program (DMSP) and NOAA's Polar Operational Environmental Satellite (POES). NPOESS will fly a suite of instruments that will provide visible and infrared cloud-cover imagery and other atmospheric, oceanographic, terrestrial, and space environmental information. In all, NPOESS will measure environmental parameters such as soil moisture, cloud levels, sea ice, ozone, and more.

Space Based Infrared System High (SBIRS High) -- The Space Based Infrared System's (SBIRS) primary mission is to provide initial warning of a ballistic missile attack on the United States, its deployed forces, or allies. As a follow-on to the nation's Defense Support Program (DSP), SBIRS consolidates the national and DoD's infrared detection systems into a single overarching architecture that fulfills the nation's security needs in the areas of missile warning, missile defense, technical intelligence, and battlespace characterization. SBIRS enables continuous global surveillance, tracking, and targeting of multiple objects in multiple areas of responsibility, and surveillance of infrared sources of operational, intelligence, and national significance.

Space Radar -- The Space Radar (SR) system will provide the deep-look, all-weather, day-and-night surveillance and reconnaissance capabilities required by both national intelligence and joint warfighters. It will be part of an integrated Intelligence, Surveillance, and Reconnaissance (ISR) system of systems providing synthetic aperture radar (SAR) imagery, surface moving target indication (SMTI), high resolution terrain information, measurement and signature intelligence (MASINT), and open ocean surveillance capabilities.

Transformational Satellite (TSAT) -- The Transformational Satellite Communications System (TSAT) is a next-generation communication satellite system that provides wideband, mobile, strategic and tactical communications to DoD, government, and allied forces/international partners. TSAT incorporates laser communications and packet routing/switching protocols to provide a high bandwidth environment. It extends the DoD ground-based Global Information Grid network to deployed and mobile users and provides assured command and control to strategic forces. TSAT increases throughput to tactical users, allowing communications-on-the-move and persistent worldwide connectivity of ISR assets.

Wideband Gapfiller System (WGS)--The Wideband Gapfiller System (WGS) provides beyond-line-of-sight and long-haul wideband communications relay for deployed forces and warfighter communications. It is a follow-on to Defense Satellite Communications System (DSCS) satellites and also provides the Global Broadcast Service (GBS) communications mission. The system consists of five satellites in geosynchronous orbit, 22,000 miles above the earth's surface.

Space Tracking and Surveillance System (STSS) -- The Space Tracking and Surveillance System program is a space-based sensor component of the Ballistic Missile Defense System. STSS satellites carry visible and infrared sensors capable of detecting and tracking missile launches. Initially, STSS will demonstrate the key functions of a space-based sensor, passing missile tracking data to missile defense interceptors with the accuracy and timeliness necessary to enable them to successfully intercept missile targets.

Mobile User Objective System (MUOS) - The Navy's MUOS program is a follow-on to its Ultra High Frequency (UHF) Follow-On (UFO) satellite communications program supporting mobile and deployed military users. MUOS provides

narrowband tactical satellite communications with increased capacity capable of penetrating foliage, inclement weather and urban terrain.

Space Situational Awareness (SSA) Network - The SSA Network is a worldwide network of optical and radar sensor systems, both ground and space-based, with associated command and control, data processing, and analysis capabilities. SSA provides data on space events and activities, including space launch, space object locations/breakups/decaying orbits, satellite attack warnings, overhear threat warnings, space treaty monitoring, and object identification/mission payload assessment of foreign satellites.

Classified Programs - Classified space programs provide key military support and intelligence data to national policymakers, military users, and allied/coalition partners.

Department of Energy

Reliable Replacement Warhead (RRW) -- Reliable Replacement Warhead is an 18-month study approved by the Nuclear Weapons Council (NWC). The goal of the RRW study is to identify designs that will sustain long term confidence in a safe, secure, and reliable stockpile and enable transformation to a responsive nuclear weapons infrastructure.

This year specific activities will include detailed design and preliminary cost estimates of RRW concepts to confirm that RRW designs provide surety enhancements, and can be certified without nuclear testing, are cost-effective, and will support both stockpile and infrastructure transformation.

Global Threat Reduction Initiative - The Global Threat Reduction Initiative is a nonproliferation effort aimed at identifying, securing, and facilitating the disposition of high-risk radiological materials around the world that pose a potential threat to the U.S. and the international community. This Initiative was put into place to address the global nature of the nuclear proliferation threat and to focus resources on high value, near term risk reduction activities.